

- STEFAN GESCHKE, *Continuous n -colorings on Polish spaces.*

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An n -coloring on a set X is a map $c : [X]^n \rightarrow 2$. Continuous 2-colorings on Polish spaces have been studied in [3] and in [2]. Given an n -coloring c , the *homogeneity number* of c is the least size of a family \mathcal{H} of c -homogeneous subsets of X with $\bigcup \mathcal{H} = X$. A coloring c is *uncountably homogeneous* if its homogeneity number is uncountable.

In [3] it was shown that there is an uncountably homogeneous, continuous 2-coloring c_{\min} on 2^ω that embeds into every uncountably homogeneous, continuous 2-coloring on any Polish space. It turns out that the situation is slightly more complicated in higher dimensions. For every $n > 2$ there is a finite collection \mathcal{B} of uncountably homogeneous, continuous n -colorings on 2^ω such that every uncountably homogeneous, continuous n -coloring on any Polish space contains an isomorphic copy of one element of \mathcal{B} . For $n = 3$, a lower bound for the size of such a *basis* \mathcal{B} is 6.

The existence of finite bases is proved using a generalization of a result of Blass [1] on continuous n -colorings on 2^ω that we derive from Milliken's theorem [4].

If time permits, some things might be said about universal continuous n -colorings.

[1] A. BLASS, *A partition theorem for perfect sets*, **Proceedings of the American Mathematical Society** 82(2), 271–277 (1981)

[2] S. GESCHKE, M. GOLDSTERN, M. KOJMAN, *Continuous Ramsey theory on Polish spaces and covering the plane by functions*, **Journal of Mathematical Logic**, Vol. 4, No. 2 (2004), 109–145

[3] S. GESCHKE, M. KOJMAN, W. KUBIŚ, R. SCHIPPERUS, *Convex decompositions in the plane and continuous pair colorings of the irrationals*, **Israel Journal of Mathematics** 131 (2002), 285–317

[4] K. MILLIKEN, *A Ramsey Theorem for Trees*, **Journal of Combinatorial Theory (Series A)** 26 (1979), 215–237